FORM PTO-1390 (REV. 10-2003) U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371

ATTORNEY 'S DOCKET NUMBER: LHUD-00301-NUS

U.S. APPLICATION NO. (If known, see 37 CFR 1.5): 10/502026

INTERNATIONAL APPLICATION NO.	INTERNATIONAL FILING DATE	PRIORITY DATE CLAIMED
PCT/PL 03/00006	January 18, 2003	21 January 2002

TITLE OF INVENTION: Class D electroacoustic amplifier and method for compensation of power supply voltage influence on output useful signal in class D electroacoustic amplifier

APPLICANT(S) FOR DO/EO/US: HANZLIK Tomasz

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. [X] This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. [ ] This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. [X] This is an express request to begin national examination procedures (35 U.S.C. 371(f)). The submission must include items (5), (6), (9) and (21) indicated below.
4. [X] The US has been elected (Article 31).
5. [X] A copy of the International Application as filed (35 U.S.C. 371(c)(2))
   a. [X] is attached hereto (required only if not communicated by the International Bureau).
   b. [ ] has been communicated by the International Bureau.
   c. [ ] is not required, as the application was filed in the United States Receiving Office (RO/US).
6. [X] An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)).
   a. [X] is attached hereto.
   b. [ ] has been previously submitted under 35 U.S.C. 154(d)(4).
7. [ ] Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
   a. [ ] are attached hereto (required only if not communicated by the International Bureau).
   b. [ ] have been communicated by the International Bureau.
   c. [ ] have not been made; however, the time limit for making such amendments has NOT expired.
   d. [ ] have not been made and will not be made.
8. [ ] An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371 (c)(3)).
9. [X] An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)). (Copy of original PCT declaration of 10/30/02)
10. [ ] An English language translation of the annexes of the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

Items 11 to 20 below concern document(s) or information included:

11. [ ] An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12. [ ] An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. [X] A preliminary amendment.
14. [ ] An Application Data Sheet under 37 CFR 1.76.
15. [ ] A substitute specification.
16. [X] A power of attorney and/or change of address letter.
17. [ ] A computer-readable form of the sequence listing in accordance with PCT Rule 13*ter*.2 and 37 CFR 1.821 - 1.825.
18. [ ] A second copy of the published international application under 35 U.S.C. 154(d)(4).
19. [ ] A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4).
20. [X] Other items or information: Search Report of PCT Application No. PCT/PL 03/00006, Copy of Polish Priority Document No. P-351783, Translation of Polish Priority Document No. P-351783, Petition to Make Special under 37 CFR 1.102(d), Declaration of Matthias Scholl to support Petition to Make Special under 37 CFR 1.102(d)

U.S. APPLICATION NO. (if known, see 37 CFR 1.5) 10/502026	INTERNATIONAL APPLICATION NO. PCT/PL 03/00006	ATTORNEY'S DOCKET NUMBER LHUD-00301-NUS

21. ☒ The following fees are submitted:	CALCULATIONS PTO USE ONLY	
BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)):		
Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO **$1080.00**		
International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO **$920.00**		
International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO **$770.00**		
International preliminary examination fee (37 CFR 1.482) paid to USPTO but all claims did not satisfy provisions of PCT Article 33(1)-(4) **$730.00**		
International preliminary examination fee (37 CFR 1.482) paid to USPTO and all claims satisfied provisions of PCT Article 33(1)-(4) **$100.00**		
ENTER APPROPRIATE BASIC FEE AMOUNT =	$ 920.00	
Surcharge of **$130.00** for furnishing the oath or declaration later than 30 months from the earliest claimed priority date (37 CFR 1.492(e)).	$	

CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE		
Total claims	8 - 20 =	0	x **$18.00**	$	
Independent claim	2 - 3 =	0	x **$86.00**	$	
MULTIPLE DEPENDENT CLAIM(S) (if applicable)			+ **$290.00**	$	

TOTAL OF ABOVE CALCULATIONS =	$ 920.00	
☒ Applicant claims small entity status. See 37 CFR 1.27. The fees indicated above are reduced by 1/2.	$ 460.00	
SUBTOTAL =	$ 460.00	
Processing fee of **$130.00** for furnishing the English translation later than 30 months from the earliest claimed priority date (37 CFR 1.492(f)).	$	
TOTAL NATIONAL FEE =	$ 460.00	
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). **$40.00** per property +	$	
TOTAL FEES ENCLOSED =	$ 590.00	
Fee for Petition under 37 CFR 1.102(d) (37 CFR 1.17(i)(2)) $130.00	**Amount to be refunded:**	$
	charged:	$

a. ☐ A check in the amount of $ _____ to cover the above fees is enclosed.

b. ☐ Please charge my Deposit Account No. _____ in the amount of $ _____ to cover the above fees. A duplicate copy of this sheet is enclosed.

c. ☐ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. _____ . A duplicate copy of this sheet is enclosed.

d. ☒ Fees are to be charged to a credit card. **WARNING:** Information on this form may become public. **Credit card information should not be included on this form.** Provide credit card information and authorization on PTO-2038.

NOTE: Where an appropriate time limit under 37 CFR 1.495 has not been met, a petition to revive (37 CFR 1.137 (a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

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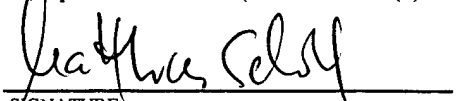

SIGNATURE

Dr. Matthias Scholl

NAME

54,947

REGISTRATION NUMBER

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: HANZLIK Tomasz	Atty Docket No. LHUD-00301-NUS
Serial No:	Art Unit:
Filing Date:	Examiner:
For: Class D Electroacoustic Amplifier ...	Paper Type: Declaration in Support of Petition to Make Special under 37 C.F.R. §1.102(d)
	Date transmitted: 07/20/2004
	In response to:

Mail Stop PCT
Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

DECLARATION OF MATTHIAS SCHOLL

Dear Sir:

Matthias Scholl declares as follows:

1. I am the CEO of Scholl Patent Agency, Inc., and the Agent for the Applicant in the above-identified patent application. I am a registered Patent Agent (Registration No. 54,947). I make this Declaration in support of Applicant's Petition to Make Special in the above-identified application.

2. The subject matter of the above-identified application relates to class D electroacoustic amplifier and method for compensation of power supply voltage influence on output audio signal in class D electroacoustic amplifier.

3. To determine the patentability of the claims as submitted in the application, the Applicant relies on a search conducted by the European Patent Office in conjunction with the parent PCT case PCT/PL 03/00006. The EPO ISA has searched in International Class IPC 7 H03F. This search was conducted by EPO ISA employee T. Agerbaek on 6/27/2003.

4. The pre-examination search uncovered the following pertinent patents and articles, copies of which are attached hereto:

US Patent No. 5,559,467 to Smedley
US Patent No. 5,262,733 to Nakajima et al.
US Patent No. 5,160,896 to McCorkle
Hancock J: "A Class D Amplifier using MOSFETs with Reduced Minority Carrier Lifetime" Journal of the Audio Engineering Society, Audio Engineering Society, New York, US, Vol. 39,

No. 9, September 1, 1991, Pages 650-662, ISSN 004-7554.

5.

US Patent No. 5,559,467 to Smedley recites an improvement in an amplifier and a method to reduce the output distortion due to power supply variations. Smedley uses a sampled power supply to shape the input digital signal. The effect of supply variations are allegedly canceled at the output. Smedley also uses a high pass filter to shape the input signal noise and an interpolator to reduce the required counter frequency. However, Smedley does not teach or recite an amplifier containing "a saw-shaped voltage generator and a comparator, to one of which inputs an audio signal is sent, while its second input is connected to the adder of the compensation circuit of supply voltage influence on the output audio signal, to which a voltage from a reference voltage source is sent, characterized in that a low-pass filter and a high-pass filter are connected to the supply voltage source, and the reference voltage source is connected to an inverting circuit, whose input is connected to the low-pass filter output, while the high-pass filter output and the output of the inverting circuit are connected to a multiplier, whose output is connected to the input of another multiplier, whose second input is connected to the saw-shaped voltage generator, and the multiplier output is connected to one input of the adder, whose second input is connected to the saw-shaped voltage generator." Therefore, US Patent No. 5,559,467 does not anticipate the amplifier as claimed in Claims 1-4.

Similarly, Smedley does not teach or recite "a saw-shaped signal generator and a comparator making use of pulse width modulation," and an amplifier "to whose input an audio signal is sent, and whose second input is connected to an adder of a compensation circuit of supply voltage influence on the output audio signal, to which a voltage from a reference voltage source is sent, characterized in that from the power supply source a fast-changing signal $v_{ii}(t)$ and a slow-changing signal $v_i(t)$ are extracted and then the slow-changing signal $v_i(t)$ is inverted and multiplied by the a value of a reference supply voltage V_{DCref}, which results in an output signal $v_0(t)$, which then is multiplied by a fast-changing signal $v_{ii}(t)$, which results in an error signal $e(t)$, which then is multiplied by a saw-shaped signal $V_C(t)$ from the generator, and the resulting signal is added to a saw-shaped signal $V_C(t)$ and as a corrected carrier wave $V_{CM}(t)$ is sent to one of the inputs of the comparator, which makes use of pulse width modulation, and to its second input the audio signal is sent." Therefore, US Patent No. 5,559,467 does not anticipate the methods as claimed in Claims 5-8.

US Patent No. 5,262,733 to Nakajima et al. recite an amplifier and a method to reduce the output noise due to power supply variations. The amplitude of Nakajima's saw-shaped voltage generator is controlled by power supply variations and so it is proportional to the supply voltage. Also, Nakajima et al. recite a way to shorten the width of first and last pulse of output signal relative to other pulses. However, Nakajima et al. do not teach or recite an adder in the compensation circuit of supply voltage influence on the output audio signal "to which a voltage from a reference voltage source is sent, characterized in that a low-pass filter and a high-pass filter are connected to the supply voltage source, and the reference voltage source is connected to an inverting circuit, whose input is connected to the low-pass filter output, while the high-pass filter output and the output of the inverting circuit are connected to a multiplier, whose output is connected to the input of another multiplier, whose second input is connected to the saw-shaped voltage generator, and the multiplier output is connected to one input of the adder, whose second

input is connected to the saw-shaped voltage generator." Therefore, US Patent No. 5,262,733 does not anticipate the amplifier as claimed in Claims 1-4.

Similarly, Nakajima et al. do not teach or recite an amplifier "whose second input is connected to an adder of a compensation circuit of supply voltage influence on the output audio signal, to which a voltage from a reference voltage source is sent, characterized in that from the power supply source a fast-changing signal $v_{ii}(t)$ and a slow-changing signal $v_i(t)$ are extracted and then the slow-changing signal $v_i(t)$ is inverted and multiplied by the a value of a reference supply voltage V_{DCref}, which results in an output signal $v_0(t)$, which then is multiplied by a fast-changing signal $v_{ii}(t)$, which results in an error signal $e(t)$, which then is multiplied by a saw-shaped signal $V_C(t)$ from the generator, and the resulting signal is added to a saw-shaped signal $V_C(t)$". Therefore, US Patent No. 5,262,733 does not anticipate the methods as claimed in Claims 5-8.

US Patent No. 5,160,896 to McCorkle recites a push-pull output stage of an audio amplifier and a hysteresis-type PWM having a constant operating frequency. However, McCorkle does not teach or recite an adder in the compensation circuit of supply voltage influence on the output audio signal "to which a voltage from a reference voltage source is sent, characterized in that a low-pass filter and a high-pass filter are connected to the supply voltage source, and the reference voltage source is connected to an inverting circuit, whose input is connected to the low-pass filter output, while the high-pass filter output and the output of the inverting circuit are connected to a multiplier, whose output is connected to the input of another multiplier, whose second input is connected to the saw-shaped voltage generator, and the multiplier output is connected to one input of the adder, whose second input is connected to the saw-shaped voltage generator." Therefore, US Patent No. 5,160,896 does not anticipate the amplifier as claimed in Claims 1-4.

Similarly, McCorkle does not teach or recite an amplifier "whose second input is connected to an adder of a compensation circuit of supply voltage influence on the output audio signal, to which a voltage from a reference voltage source is sent, characterized in that from the power supply source a fast-changing signal $v_{ii}(t)$ and a slow-changing signal $v_i(t)$ are extracted and then the slow-changing signal $v_i(t)$ is inverted and multiplied by the a value of a reference supply voltage V_{DCref}, which results in an output signal $v_0(t)$, which then is multiplied by a fast-changing signal $v_{ii}(t)$, which results in an error signal $e(t)$, which then is multiplied by a saw-shaped signal $V_C(t)$ from the generator, and the resulting signal is added to a saw-shaped signal $V_C(t)$". Therefore, US Patent No. 5,160,896 does not anticipate the methods as claimed in Claims 5-8.

The article "A Class D Amplifier using MOSFETs with Reduced Minority Carrier Lifetime" by Hancock compares a buck PWM switch and Cuk converter. Hancock reviews the advantages and disadvantages of each and summarizes that a buck converter is better for the design. Hancock recites a method to design a PWM switch and compensation of the variations in output due to variations in supply voltage by using a feedforward modulator gain correction. However, Hancock does not teach or recite an adder in the compensation circuit of supply voltage influence on the output audio signal "to which a voltage from a reference voltage source is sent, characterized in that a low-pass filter and a high-pass filter are connected to the supply voltage source, and the reference voltage source is connected to an inverting circuit, whose input is connected to the low-pass filter output, while the high-pass filter output and the output of the inverting circuit are connected to a multiplier, whose output is connected to the input of another

multiplier, whose second input is connected to the saw-shaped voltage generator, and the multiplier output is connected to one input of the adder, whose second input is connected to the saw-shaped voltage generator." Therefore, Hancock does not anticipate the amplifier as claimed in Claims 1-4.

Similarly, Hancock does not teach or recite an amplifier "whose second input is connected to an adder of a compensation circuit of supply voltage influence on the output audio signal, to which a voltage from a reference voltage source is sent, characterized in that from the power supply source a fast-changing signal $v_{ii}(t)$ and a slow-changing signal $v_i(t)$ are extracted and then the slow-changing signal $v_i(t)$ is inverted and multiplied by the a value of a reference supply voltage V_{DCref}, which results in an output signal $v_0(t)$, which then is multiplied by a fast-changing signal $v_{ii}(t)$, which results in an error signal $e(t)$, which then is multiplied by a saw-shaped signal $V_C(t)$ from the generator, and the resulting signal is added to a saw-shaped signal $V_C(t)$". Therefore, Hancock does not anticipate the methods as claimed in Claims 5-8.

6. In accordance with Manual of Patent Examining Procedure §708.02 VIII, Applicant hereby agrees to restrict examination to the amplifier and the method claims (Claims 1 through 8) appearing in the application, without traverse, as a prerequisite to the grant of special status.

7. I further declare that all statements made herein of my own personal knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the above-referenced application or any patent issuing thereon.

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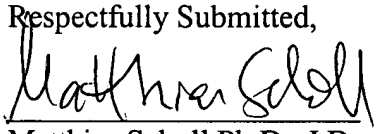
Respectfully Submitted,



Matthias Scholl Ph.D., J.D.
Reg. No. 54,947
Agent for Applicants

Date: July 20, 2004

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AUTHORIZATION

I, undersigned below Andrew Rybicki, representing Advanced Digital Broadcast Ltd., hereby authorize

Jaroslaw Mirkowski

Director of Intellectual Property Department
Advanced Digital Broadcast Polska spółka z ograniczoną odpowiedzialnością

to act on behalf of Advanced Digital Broadcast Ltd. for the purpose of signing statements under 37 CFR 3.73(b) (related to establishing ownership of patent or trademark properties), including signing the USPTO SB/96 form.

This authorization shall remain in force till 31th December 2004, unless revoked in writing at an earlier date.

2nd February 2004

Andrew Rybicki
President and CEO